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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,484	01/15/2004	Kevin Curtis Griffin	ROC920030367US1	6194
30206 7590 12/18/2006 IBM CORPORATION ROCHESTER IP LAW DEPT. 917 3605 HIGHWAY 52 NORTH ROCHESTER, MN 55901-7829			EXAMINER THOMAS, SHANE M	
			ART UNIT	PAPER NUMBER
			2186	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/18/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/758,484	Applicant(s) GRIFFIN ET AL.	
	Examiner Shane M. Thomas	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2006 has been entered.

Claims 1-32 and 24 are currently pending; claims 33 and 35 have been canceled.

All previously outstanding objections and rejections to the Applicant's disclosure and claims not contained in this Action have been respectfully withdrawn by the Examiner hereto.

Response to Amendment

The affidavit filed on 10/31/2006 under 37 CFR 1.131 in addition to the affidavits filed under 37 CFR 1.131 filed on 5/15/2006 are sufficient to overcome the Burton et al. reference (U.S. Patent Application Publication No. 2005/0091391). As a result, the previous outstanding rejections utilizing the Burton reference have been respectfully withdrawn hereto; however, upon a cursory search of the prior art, the reference of Micka et al. (U.S. Patent No. 5,592,618) has been found and applied to claims of record as discussed in the rejections that follow.

Response to Arguments

Applicant's arguments with respect to claims 1-32 and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 17-30 are objected to because of the following informalities:

As per claim 17, line 7, the word "and" should be removed to clarify the claim limitation, thereby reading, "and after initiating the completion of the plurality of update request, initiating the completion of a subsequent update request."

Claims 18-30 are objected to as being dependent upon an objected base claims.
Appropriate correction is required.

Claim Rejections - 35 USC § 101

Claims 17-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 17 and 31, it appears the element --program code-- of the claims is directed to software, per se, and lacks a proper medium on which the program code is stored and accessed by the processor. The --program code-- does not define any structural or functional interrelationship between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the

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computer which permit the computer program's functionality to be realized, and is thus statutory. Refer to MPEP § 2106.01(i). Claims 18-30 are rejected as being dependent upon a rejected base claim and, further, do not inject a limitation to render the base claim statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,6-32, and 34, are rejected under 35 U.S.C. 102(b) as being anticipated by Micka et al. (U.S. Patent No. 5,592,618).

As per claim 1, Micka teaches **a method for updating data at a backup system** (figure 1, 431) **that tracks updates made to a primary system 421** where the method comprises: **creating a group** (e.g. consistency group #1 of figure 6) **including a plurality of update requests [9/52-54]; concurrently completing the plurality of update requests of the group [11/37-46]** (Applicant defines --concurrent completion-- to be completion of update requests “within the same window of time and without regard to order” [page 3, lines 11-15 of Applicant's specification] and Micka specifically teaches that a consistency group may comprises independent writes, that may be performed in any order, e.g. “concurrently,” in [11/36-38]); **after completing the plurality of update requests, completing a subsequent update request [11/45-46]**, where dependent writes may be supplied to the backup system in a

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subsequent update request group, and [11/55-65] as well as figure 6, where a second consistency group is executed after the first update requests of the first consistency group.

As per claim 2, Micka teaches **wherein completing a subsequent update request includes creating a subsequent group** (figure 6, [11/55-65], and [11/45-46], show that multiple consistency groups may be formed where dependent update writes may be contained in subsequent consistency groups).

As per claims 3 and 20, Micka teaches **wherein creating the group further includes creating a group that includes a plurality of requests initiated at a plurality of applications** (402 and 403 of figure 1, where the update requests are application writes - [11/37-43].

As per claims 4 and 21, Micka teaches **wherein creating the group further includes updating a count associated with a number of the plurality of update requests** (figure 3, element 609).

As per claims 6 and 22, Micka teaches **wherein creating the group further includes updating a status** (status flags 604, figure 3) **indicative whether the group is active** (e.g. whether the group contains update requests [10/5-6]), where the Examiner is considering --being active-- as whether or not the associated group contains update requests 620 as shown in figure 3.

As per claims 7,16, and 24, Micka teaches **wherein creating the group further includes assigning a group number** (sequence number 605 - figure 3 or 504 of figure 2) **to an update request of the plurality of update requests.**

As per claims 8 and 25, Micka teaches **wherein completing the plurality of update requests further includes issuing an update request of the plurality of update requests** (figure 8, step 1160, and [13/64 - 14/7]).

As per claims 9 and 26, Micka teaches **wherein creating the group** (e.g. steps 1000-1070 of figure 7) **further includes reading a group number from an update request of the plurality of update requests** (step 1040), where the read record set information 600 comprises group number 605 - [12/54-58].

As per claims 10,15, and 27, Micka teaches **wherein completing the plurality of update requests further includes holding the subsequent update request** [11/37-46], where dependent subsequent write requests are held so that prior update requests on which the update request held depends may execute [and be written] first.

As per claims 11 and 28, Micka teaches **wherein completing the subsequent update request further includes releasing a hold on the subsequent update request** [11/37-46], where after a dependent write is executed, the subsequent update request which is dependent upon the previous write is executed.

As per claims 12 and 13, Micka states that either the **primary system 421** or a **backup system 431** may **create groups** (consistency groups - figure 8, steps 1100-1130), **complete groups** (figure 8, step 1130), and **complete subsequent update request** (figure 8, step 1130 for a subsequent consistency group as discussed in the rejection of claim 1, above) as taught in [11/47-49].

As per claim 14, Micka teaches **synchronously processing a plurality of groups of update requests** [11/55-59], as the consistency groups are executed in synchronous order - also

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see [11/43-46] - and **asynchronously processing the update requests in each group** [11/36-39], as update requests that are independent may be executed out of order. Applicant defines asynchronous execution as processing updates without regard to sequential order (page 3, lines 3-15, of the specification), and Micka teaches such asynchronous activity as cited when the update requests of a given consistency group comprise independent writes.

As per claim 17, Micka teaches an **apparatus** (figure 1) **comprising a processor** (refer to claim 1 of Micka) and **programming code** (host storage software - [6/51-56], and/or the copy software comprising the data mover 404 - [15/21-23] **communicating with the processor** (as the processor inherently would have been used to execute the data mover 404 software instructions) **configured to process a plurality of update requests by initiating a plurality of update requests having no order dependency** ([9/52-54], (where the update requests can be independent writes - [11/37-39]), **concurrently initiating completion of the plurality of update requests** [11/37-46], **and after initializing the completion of the plurality of update requests, initiating completion of a subsequent update request** [11/45-46], where dependent writes may be supplied to the backup system in a subsequent update request group, and [11/55-65] as well as figure 6, where a second consistency group is executed after the first update requests of the first consistency group.

As per claim 18, Micka teaches **the program code 404,414 residing on both the primary system 421** (figure 1, element 404) and the **backup system 431** (element 414), **and the backup system is peripheral from the primary system** (figure 1 shows a peripheral connection 408 between the two systems).

As per claim 19, Micka teaches **the program code initiating creating a subsequent group** (figure 8, steps 1140-1150).

As per claim 23, Micka teaches **a memory** (figure 1, 406) **accessible to the program code** as the DASD 406 is the memory whose write requests are being mirrored to the backup system 431.

As per claims 29 and 30, Micka teaches **the program code** (414,404) **residing on both a backup system 431 and a primary system 421** (figure 1), respectively.

As per claims 31, the rejection follows the rejections for claims 14 and 17.

As per claim 32, the rejection of lines 1-7 follows the rejection of claims 1 and 17. As per lines 8-9, Micka inherently teaches a **recordable type signal bearing medium bearing the program code** as the data mover 404 software must inherently be contained on a signal bearing medium in order to be accessed and executed by the processor (claim 1 of Micka). Further, it is inherent that the signal bearing medium is **recordable** since the medium, initially blank, at some point before the system 421 begins operation according to Micka must have the data mover code/software written thereon in order to be executed by the processor.

As per claim 34, the rejection of lines 1-5 follows the rejection of 14 and 31. As per lines 6-7, the rejection follows the rejection of lines 8-9 of claim 32, above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Micka et al. (U.S. Patent No. 5,592,618).

As per claim 5, Micka does not specifically teach **selectively activating the method of claim 1**; however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have seen that the systems of Micka 421 and 431 could have turned on and off by a user/administrator at some point in time in order to gain the benefit of the backup system of Micka. Further, it would have been obvious for one having ordinary skill in the art to have seen that after a disaster recovery procedure [2/25 - 3/2], where data was recovered from one of the systems 421,431, the method of claim 1 would have been restarted or activated again (selectively, once the data had been recovered) in order to have gained the benefit of data integrity as taught throughout Micka.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shane M. Thomas



PIERRE BATAILLE
PRIMARY EXAMINER
12/08/06